

US009636943B2

# (12) United States Patent

### **Connolly**

### (10) Patent No.: US 9,636,943 B2

(45) **Date of Patent:** \*May 2, 2017

## (54) WHEEL WITH HIGH STRENGTH FLEXIBLE SPOKES

(71) Applicant: Spinergy Inc., Carlsbad, CA (US)

(72) Inventor: Martin Connolly, San Marcos, CA

(US)

(73) Assignee: SPINERGY INC.

(\*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 0 days.

This patent is subject to a terminal dis-

claimer.

(21) Appl. No.: 14/667,477

(22) Filed: Mar. 24, 2015

(65) Prior Publication Data

US 2016/0009125 A1 Jan. 14, 2016

#### Related U.S. Application Data

(63) Continuation-in-part of application No. 13/487,253, filed on Jun. 4, 2012, now Pat. No. 8,985,707.

(51) Int. Cl.

 B60B 1/02
 (2006.01)

 B60B 5/02
 (2006.01)

 B60B 1/04
 (2006.01)

 B60B 21/06
 (2006.01)

(52) U.S. Cl.

CPC ........ **B60B 1/0246** (2013.01); **B60B 1/0261** (2013.01); **B60B 1/042** (2013.01); **B60B 1/044** (2013.01); **B60B 5/02** (2013.01); **B60B 21/062** (2013.01); **B60B 2360/32** (2013.01); **B60B** 

2900/111 (2013.01); B60B 2900/1216 (2013.01); B60B 2900/311 (2013.01); B60B 2900/313 (2013.01); B60Y 2200/12 (2013.01); B60Y 2200/13 (2013.01); B60Y 2200/84 (2013.01)

#### (58) Field of Classification Search

CPC ....... B60B 1/003; B60B 1/0261; B60B 1/041; B60B 1/042; B60B 1/043; B60B 1/044; B60B 1/045; B60B 1/046; B60B 5/02; B60B 21/062; B60B 21/064

See application file for complete search history.

#### (56) References Cited

#### U.S. PATENT DOCUMENTS

8,985,707 B1*	3/2015	Connolly B60B 1/0261
0.005.700 Daw	2/2015	301/104
8,985,708 B2*	3/2015	Connolly B60B 1/04 301/104
2010/0078987 A1*	4/2010	Lubecki B60B 1/003
2011(0217525 111)	0.0044	301/56
2011/0215636 A1*	9/2011	Huang B60B 1/02 301/56

<sup>\*</sup> cited by examiner

Primary Examiner — Kip T Kotter (74) Attorney, Agent, or Firm — Gary L. Eastman, Esq.; Eastman & McCartney LLP

#### (57) ABSTRACT

A wheel with flexible spokes, including a rim and hub, and spokes between the rim and hub made of fibrous material that causes the spokes to be both lighter in weight and stronger than comparable steel spokes. The spokes are also flexible and resilient such that they can bend while retaining their integrity and strength.

#### 14 Claims, 9 Drawing Sheets

